

REMARKS

Claims 1-47 are pending in the subject application. Claims 46 and 47 have been withdrawn from consideration. In the present final Office Action, claims 1, 2, 10, 11, 16, 18, 24, 25, 30, 32, 33, 41, and 44 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 3,037,004 to Simone et al. ("Simone"). Claims 1-45 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,807,937 to Matyjaszewski et al. ("the 937 patent"). Applicants respectfully traverse the rejections of claims 1-45 as set forth herein.

First, Applicants would like to express their appreciation to Examiner Rabago for participating in the telephonic interview of April 10, 2007. The present response includes amendments and remarks as discussed during the interview.

Claims 1 and 32 have been amended to include the element "conditional metal-radically transferable atom or group phylicity of greater than 10". Claims 17, 31, and 45, which depend from claim 1 or 32, have been amended to delete those elements that appear in amended independent claims 1 and 32. Support for these amendments may be found in the specification as filed, for example at paragraph [0017] and the claims. Claims 17 and 45 have been amended to delete the term "suitable" before catalyst to correct the antecedent basis. Claim 28 has been amended to correct a minor typographical error. No new subject matter is added by these amendments. Applicants assert that the amendments place the claims in condition for allowance and respectfully request that the Examiner enter these amendments.

Rejection under 35 U.S.C. § 102(b)

Claims 1, 2, 10, 11, 16, 18, 24, 25, 30, 32, 33, 41, and 44 stand rejected under 35 U.S.C. §102(b) as being anticipated by Simone. Applicants traverse this rejection as set forth herein.

In Applicants' response of November 7, 2006, Applicants amended independent claims 1 and 32 to include limitations from dependent claims 17 and 45, respectively, which the Examiner had indicated as being allowable over Simone. In the present Office Action and interview of April 10, 2007, the Examiner indicated that the limitation which precluded rejection of the dependent claims over Simone was

“conditional metal-radically transferable atom or group phylicity of greater than 10.” In the present response, Applicants have amended claims 1 and 32 to include this limitation. As noted in the Office Action, Simone does not disclose an atom-transfer reaction system and therefore does not disclose or suggest this limitation.

The Examiner also indicates that the term “phylicity” is undefined. Applicants note that the term “phylicity” is an Oxford-English spelling of the American-English term “philicity”. The two terms would have the same definition.

Simone does not teach an atom-transfer reaction system and therefore does not anticipate the claims as amended. Withdrawal of the rejection of claims 1, 2, 10, 11, 16, 18, 24, 25, 30, 32, 33, 41, and 44 under 35 U.S.C. § 102(b) is respectfully requested.

Rejections under 35 U.S.C. § 103(a)

Claims 1-45 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the '937 patent. Applicants traverse this rejection as set forth herein.

In the Response of November 7, 2006, Applicants submitted a Declaration of Dr. Nicolay V. Tsarevsky under 37 C.F.R. 1.132. In the Declaration, Dr. Tsarevsky states that a suitable catalyst for polymerizing acidic monomers may have a combination of properties, such as, being at least partially soluble in the reaction media, possess a low redox potential, stability towards ionic species, low propensity to disproportionation, and sufficient conditional metal-radically transferable atom or group phylicity to act as a catalyst in the reaction media. A catalyst is suitable for the reaction if the interactions of the catalyst with the reaction media and the reaction components do not prevent the catalyst from being active in the desired reaction. Dr. Tsarevsky states that for acidic monomers, the exemplified catalysts of the '937 patent (bipyridine ligands and substituted bipyridine ligands) are not suitable catalysts, nor does the '937 patent teach how to select a suitable catalyst from the range of transition metal and ligand combinations described in the '937 patent. Ligands having such properties are a narrow set of ligands compared to the set of ligands described in the '937 patent and the properties are not taught in the '937 patent or elsewhere prior to the subject application.

In the present Office Action, the Examiner states that the burden of showing that the '937 failed to include the claimed parameters was shifted to the Applicants and that neither the content of the Declaration nor the supporting traversal argument provide more than allegations that the reference complexes are "not suitable" for the polymerization of acidic monomers.

As discussed in the telephonic interview, evidence that the exemplary ligands of the '937 patent (i.e., bipyridine ligands and substituted bipyridine ligands) are not suitable for acidic monomers is disclosed in the specification of the subject application. For example, in the Comparative Examples (paragraphs [0239] to [0257] and Figures 13a and 14) copper catalysts with bipyridine ('bpy") ligands are shown to be unsuitable for catalysis of ATRP of acidic monomers in aqueous media. Figures 13a and 14 illustrate comparative reactivities of a Cu/bpy catalyst system (of the '937 patent) and a CuBr/Na₂EDTDA catalyst system of the subject application. As can be seen in these figures and the corresponding text (paragraphs [0239] to [0257]), the Cu/bpy type ligands are unsuited for ATRP of acidic monomers in aqueous systems since the acidic monomers coordinate with the metal, thereby deactivating the catalyst.


Applicants have established that exemplary catalysts of the '937 patent are not suited for catalysis of atom transfer processes of acidic monomers in aqueous media. The subject application sets forth properties and methods for determining ligand/catalysts complexes that are suited for atom transfer processes of acidic monomers in aqueous media. One skilled in the art would not find these properties obvious from the disclosure of the '937 patent. Therefore the processes of claims 1-45 are non-obvious over the disclosure of the '937 patent and Applicants respectfully request withdrawal of the rejection.

CONCLUSION

Applicants submit that claims 1-45 of the subject application recite novel and non-obvious processes for forming polymers from acidic monomers. Applicants respectfully request that the Examiner consider the Amendments and Remarks submitted herein and Applicants respectfully submit that all claims in the subject application are in condition for allowance. Accordingly, reconsideration of the rejection and allowance of all pending claims is earnestly solicited.

If the undersigned can be of assistance to the Examiner in addressing issues to advance the application to allowance, please contact the undersigned at the number set forth below.

Respectfully submitted,



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